

Repair Manual

Touran 2003 ➤, Passat 2006 ➤, Passat Variant 2006 ➤, Eos 2006 ➤, Tiguan 2008 ➤, Passat CC 2009 ➤, Scirocco 2009 ➤, Golf 2009 ➤, Golf Plus 2009 ➤, Polo 2010 ➤, Golf Variant 2010 ➤, Jetta 2011 ➤, CC 2010 ➤, Touareg 2010 ➤, Sharan 2011 ➤, Polo Lim RUS 2011 ➤, Passat 2011 ➤, Passat Variant 2011 ➤, Golf Cabriolet 2012 ➤, Beetle 2012 ➤, Passat (NMS - US) 2012 ➤, up! 2012 ➤, The Beetle Cabriolet 2012 ➤, CC 2012 ➤, Golf 2013 ➤, e-up! 2014 ➤, e-Golf 2014 ➤, Golf Variant 2014 ➤, Polo KH MY 2014 ➤, Polo Lim MY 2014 ➤, Golf 2015 ➤, Jetta 2013 ➤, Polo 2014 ➤, Scirocco 2015 ➤, Golf Sportsvan 2015 ➤, Jetta 2015 ➤, Polo KH IN 2015 ➤, Passat 2015 ➤, Passat Variant 2015 ➤, Touareg 2015 ➤, Polo KH MY 2015 ➤, Golf Variant 2015 ➤, Touran 2016 ➤, Passat (NMS - US) 2016 ➤, Polo Lim IN 2016 ➤, Polo Lim MY 2016 ➤, Polo Lim RUS 2016 ➤, Sharan 2016 ➤, Tiguan 2016 ➤, The Beetle Cabriolet 2017 ➤, The Beetle 2017 ➤, e-up! 2017 ➤, up! 2017 ➤, Golf 2017 ➤,

Golf Variant 2017 ➤ , Atlas 2017 ➤ ,
e-Golf 2017 ➤ , Polo 2018 ➤ ,
Tiguan RUS 2017 ➤ ,
Tiguan MEX 2017 ➤ , Arteon 2018 ➤ ,
T-Roc 2018 ➤ , Golf MEX 2018 ➤ ,
Golf Variant MEX 2018 ➤ , Jetta 2018 ➤ ,
Touareg 2018 ➤ , Golf Sportsvan 2018 ➤ ,
T-Cross 2019 ➤ ,
Passat (NMS - US) 2019 ➤ ,
Passat 2019 ➤ , Passat Variant 2019 ➤ ,
Golf 2020 ➤ , ID.3 2020 ➤ , Atlas 2020 ➤ ,
T-Roc Cabriolet 2020 ➤ ,
Atlas (PA) 2020 ➤ ,
Polo Lim RUS 2020 ➤ , Arteon 2021 ➤ ,
Arteon Shooting Brake 2021 ➤ ,
ID.4 2021 ➤ , Tiguan 2021 ➤ ,
Taos Mex 2021 ➤ , Taos Arg 2021 ➤ ,
ID.5 2021 ➤ , Polo 2022 ➤ ,
Tiguan MEX 2022 ➤ , Jetta 2022 ➤ ,
Taigun 2022 ➤ , T-Roc 2022 ➤ ,
T-Roc Cabriolet 2022 ➤ , Virtus 2022 ➤ ,
ID.4 - NA 2023 ➤ , Touareg 2024 ➤ ,
Atlas (PA) 2024 ➤ ,
Cross Sport PA 2024 ➤ , Jetta 2025 ➤ ,
Taos Mex 2025 ➤

Noise Detection and Diagnosis Guide

Edition 10.2024



List of Workshop Manual Repair Groups

Repair Group

00 - General, Technical Data



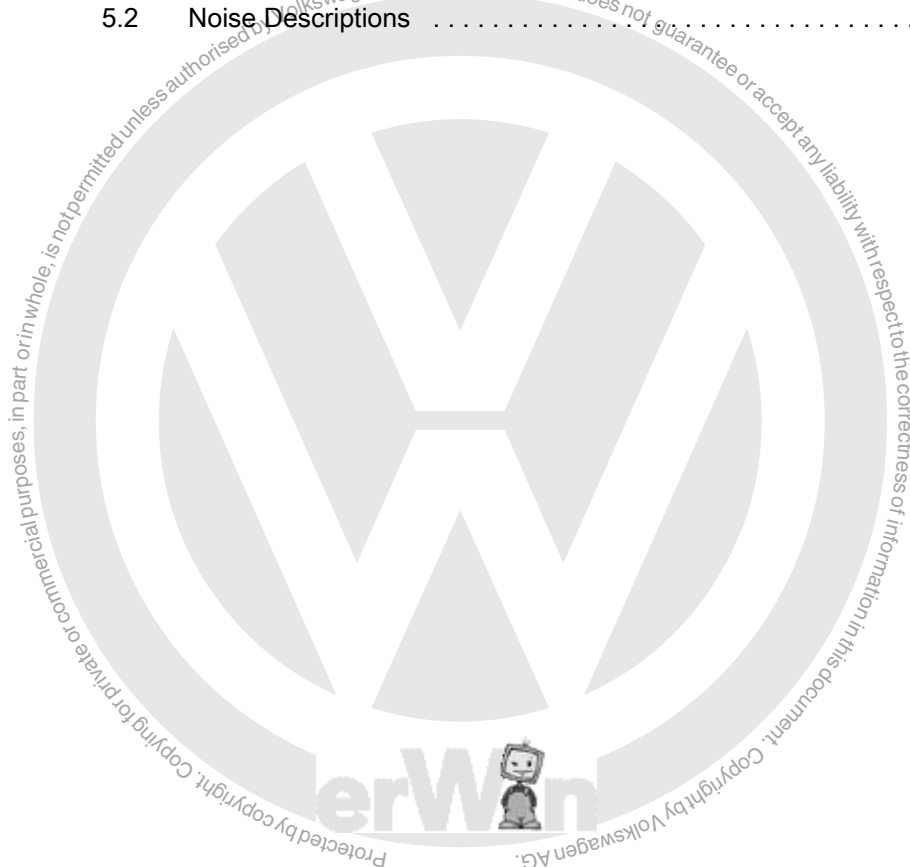
Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.





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00 – General, Technical Data

1 Introduction

(Edition 10.2024)

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The normal operation of a vehicle causes ordinary noises and vibrations to occur. However, alarming sounds and noises can occasionally occur, which may be a result of other conditions, such as malfunctions, wear and/or aging. These noises can sometimes serve as a warning of possible damage that may occur in the near future.

It should be treated as a problem, if the customer senses noises or vibrations are unusual.

Even noises that are not very loud can be a cause of concern for the customer. It could be a new noise that was not heard before or an unusual noise for the customer. It is therefore absolutely necessary to perform an inspection based on the customer complaint.

It is helpful to know the characteristics and theories of sound in order to allocate and identify these noises.



2 Development of Vehicle Acoustics

⇒ [“2.1 Vibration Damping Foil”, page 2](#)

⇒ [“2.2 Noise Insulation”, page 3](#)

Throughout the history of the automobile, noises have been decreased thus creating a higher level of comfort in the vehicle. Other properties have also improved (stability, climate control, ergonomics, impermeability, safety, corrosion protection, mechanical performance, etc.).

In addition to the reduction of the amount of noises and noise levels, the noises related to dynamic, mechanical and suspension operation were also insulated or they were blocked from being heard from inside the vehicle.

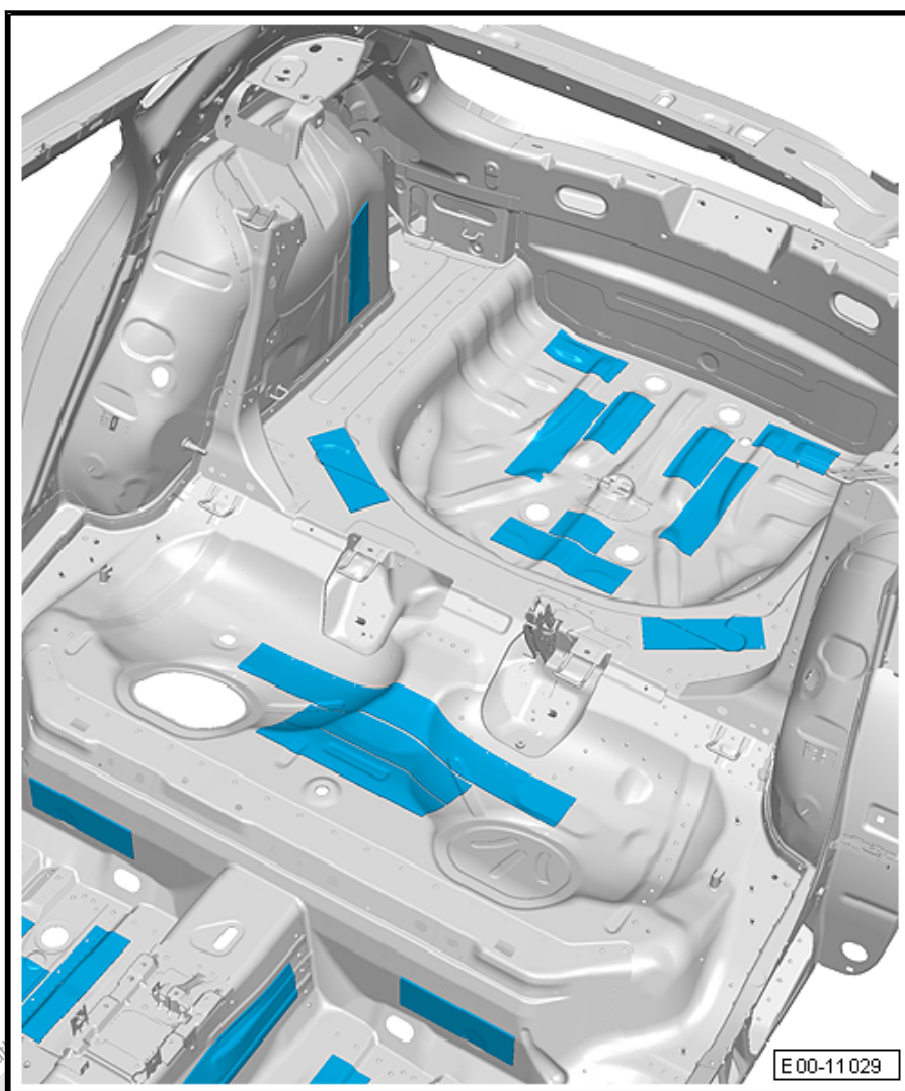
Because of these advances, noise insulation has advanced to a level that was unimaginable several decades ago.

All of this was attainable not only by preventing the generation of noises, but also because of noise and vibration damping elements, that were installed in areas previously analyzed to prevent noise transfer.

2.1 Vibration Damping Foil

The main purpose of vibration damping foil is to insulate noise in the vehicle interior. They reduce the transfer of driving noises to the vehicle interior and prevent noise being generated by large panels vibrating.





2.2 Noise Insulation

Noise insulation or acoustic insulation reduces the transfer of driving noises from hollow cavities into the vehicle interior and their most important function is noise insulation for the vehicle interior.



1 - Noise Insulation in Upper A-Pillar

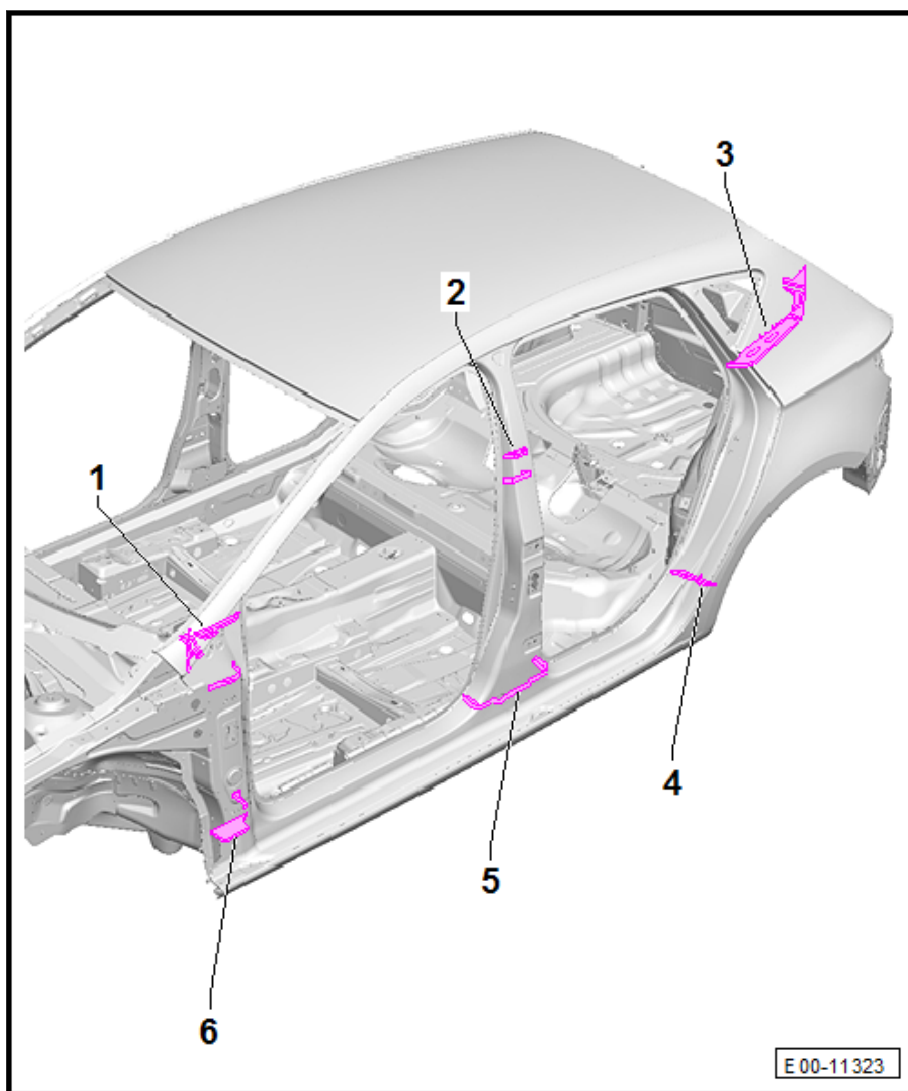
2 - Noise Insulation in Upper B-Pillar

3 - Noise Insulation in Upper C-Pillar

4 - Noise Insulation in Lower C-Pillar

5 - Noise Insulation in Lower B-Pillar

6 - Noise Insulation in Lower A-Pillar





3 General Procedure - Noises, Identifying

⇒ [“3.1 General Procedure”, page 5](#)

⇒ [“3.2 Noise, Identifying”, page 5](#)

⇒ [“3.3 Locating Noises, using Sound Recordings \(Frequency\)”, page 7](#)

⇒ [“3.4 Checklist”, page 8](#)

3.1 General Procedure

The following steps are to be followed in chronological order when identifying a noise:

- ◆ To correctly identify a noise and the reason for the complaint, the checklist should always be filled out as much as possible with the typical vehicle user. Begin with the origin of the noise, the type, the time when it occurs and a description of the noise.
- ◆ Pay attention to the Technical Service Bulletin (TSB).
- ◆ Pay attention to the case examples.
- ◆ Locate the noise using specific devices.
- ◆ After diagnosing the noise, fill out the check list completely.



Note

It is very important to note the surrounding conditions at the time when the noise occurs.

3.2 Noise, Identifying

⇒ [“3.2.1 Locating \(Origin\)”, page 6](#)

⇒ [“3.2.2 Type of Noise”, page 6](#)

⇒ [“3.2.3 Time of Occurrence”, page 6](#)

⇒ [“3.2.4 Defining or Labeling”, page 6](#)

For locating and identifying of noises, the general procedure is followed. Difficulties can result from various factors such as:

- ◆ Other sources of noise are present
- ◆ The technician's hearing ability
- ◆ Possibility of reconstructing conditions, which could create noise
- ◆ New vehicle model that the technician is not familiar with

Then the different steps are to be followed. The order can be changed based on the technician's previous experience with these operations.

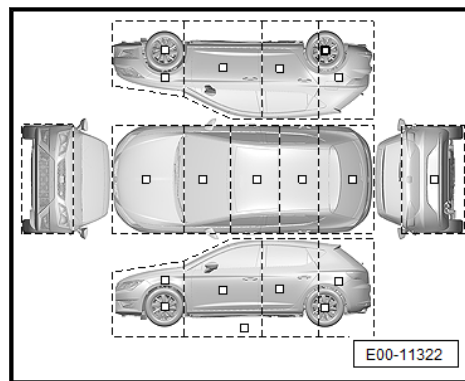
It is recommended to use this order as a reference guide.



3.2.1 Locating (Origin)

When beginning the procedure, we recommend splitting up the vehicle into quadrants to make the process easier, for example the front section, rear section, right or left side. This way, the possible cause can be isolated more accurately.

The diagrams in the checklist can also be used to mark the area(s) in which the noise is located. Refer to ➤ ["3.4 Checklist", page 8](#)



3.2.2 Type of Noise

In this step, the noises are differentiated based on their properties to determine their possible cause more precisely. This requires previous training in listening to sounds in order to differentiate between different tones and to be able to hear other overtones so that identification is correct.

As previously explained, there must be differentiation between high and low tones. Low tones have a lower frequency, similar to the male voice, while high tones have a higher frequency, similar to the female voice.

It must also be determined whether it is a periodic, recurring noise or if it is a constant noise without interruption.

At the same time, the noise is differentiated based on its duration, meaning if it is a short or long-lasting noise.

Another important aspect is determining whether the noise is composed of multiple sounds, an overriding and an additional, less relevant sound, that involves another vibrating object. Differentiations must also be made between resonant sounds and metal- or plastic-related sounds.

3.2.3 Time of Occurrence

In many cases, the point in time when the noise occurs is the determining factor in identifying the reason or origin of the noise, since this is the moment when the component is moving. This makes it easier to find out the cause, for example a component malfunction, wear or other reason.

For example, when switching on the A/C compressor, when driving over a pothole, etc.

3.2.4 Defining or Labeling

To be able to identify noises based on their similarities to other noises outside of the automotive sector, it is necessary to use the names of objects, animals or instruments to determine these familiar noises properly.

There are explanations that correspond to these noise descriptions. Refer to ➤ ["5.2 Noise Descriptions", page 19](#).



3.3 Locating Noises, using Sound Recordings (Frequency)

⇒ [“3.3.1 Preparing and Audio CD by Downloading Files”, page 7](#)

⇒ [“3.3.2 Sound Track List”, page 7](#)

⇒ [“3.3.3 Test Conditions”, page 8](#)

⇒ [“3.3.4 Conditions to Perform the Audio Test”, page 8](#)

The goal of this chapter is using the playback of different sound frequencies via the vehicle speaker system to search for and locate noises.

In this way vibrations can be produced on components that create noises to help locate them.

This noise localization concentrates itself in the doors, trim panels and speaker trim areas, and applies to noises produced during the playback via the audio system.

These methods can be used when the vehicle is stationary.

3.3.1 Preparing and Audio CD by Downloading Files

- Download the WAV files and a CD cover from the website of the importer, or get in contact with the importer.
 - Copy the different sound tracks in this sequence on a CD.
- ◆ 01. Music [1:38]
 - ◆ 02. 50 Hz sine wave [0:42]
 - ◆ 03. 60 Hz sine wave [0:42]
 - ◆ 04. 70 Hz sine wave [0:42]
 - ◆ 05. 80 Hz sine wave [0:42]
 - ◆ 06. 90 Hz sine wave [0:42]
 - ◆ 07. 100 Hz sine wave [0:42]
 - ◆ 08. 110 Hz sine wave [0:42]
 - ◆ 09. 120 Hz sine wave [0:42]
 - ◆ 10. 130 Hz sine wave [0:42]

3.3.2 Sound Track List

Sound track number 1 ► music material



Note

When playing back on each vehicle the specified volume must not create any noises in the area of the speaker and the door trim panels.



Sound Track Number 2 - Number 10



Note

- ◆ *These sound tracks contain sounds of different frequencies.*
- ◆ *Play the individual tracks one after the other until a present noise is identified.*

3.3.3 Test Conditions

Pay attention to the following conditions with performing:

- ◆ Start the Fault Finding with volume level 2 in the radio.
- ◆ The bass and the treble of the radio must be set to neutral.
- ◆ The balance control must be set to neutral.
- ◆ Slowly raise the volume of the radio until the noise-generating components are brought into vibration.
- ◆ Do not exceeded a maximum volume of 50%.

3.3.4 Conditions to Perform the Audio Test

It is recommended, to locate noises with a second technician.

One technician operates the radio system, to determine the suitable sound track for the noise reproduction.

At the same time the second technician concentrates on the area in which the noise occurs to determine the noise source and possible corrective measure.

Perform the test in the quietest work area possible.



Note

After the removal of the noise source perform the audio test again.

3.4 Checklist

The checklist or protocol for finding noises is an aid for the workshop to identify and locate noises. This is very helpful for recording data. The technician fills out the first section with the typical user of the vehicle to learn more about the noise in question ahead of time.

Checklist description (guide)

The most important checklist fields are described in this section.

Print the check list. Refer to ⇒ [“5.1 Checklist”, page 17](#) .



Checklist description (guide), Section I

- A - Vehicle data. Refer to ¹⁾ 1) or ²⁾ 2)
- B - Vehicle inspection. Refer to ³⁾ 3), ⁴⁾ 4) or ⁵⁾ 5)
- C - When the noise occurs. Refer to ⁶⁾ 6), ⁷⁾ 7) or ⁸⁾ 8)
- D - Possible damage. Refer to ⁹⁾ 9)
- E - Locating diagrams. Refer to ¹⁰⁾ 10)
- F - Noise level. Refer to ¹¹⁾ 11) or ¹²⁾ 12)
- G - Type of tone. Refer to ¹³⁾ 13) or ¹⁴⁾ 14)
- H - Duration. Refer to ¹⁵⁾ 15) or ¹⁶⁾ 16)
- I - Noise regularity. Refer to ¹⁷⁾ 17)
- J - Noise type descriptions. Refer to ¹⁸⁾ 18) or ¹⁹⁾ 19)
- K - Noise nuance. Refer to ²⁰⁾ 20)

- 1) Item no.: chronological list of accepted cases in the workshop.
- 2) Retrofittings: when retrofittings occur after manufacture
- 3) Dynamic or static test, during which the applicable noise could be detected
- 4) Can the customer complaint be confirmed?
- 5) The technician confirms that they could clearly detect and identify the noise questioned by the customer, and that it is currently being considered unusual.
- 6) The mileage at which the noise was detected.
- 7) If the noise is gradually occurring, is short or is already constantly occurring.
- 8) If the noise occurred after a collision or a procedure, such as mechanical repairs, body repair, installing devices, adaptations (tuning), etc.
- 9) Possible damage or impairments related to the noise, even if the customer is not aware of them. Perform a vehicle inspection to find these damages or impairments, since they could offer helpful information for the diagnosis.
- 10) This diagram is used to mark the area(s) where the noise is believed to occur. Different sections can be marked.
- 11) Indicate the decibel if a sound intensity meter is available.
- 12) In the vehicle interior with all of the doors and windows closed, mark one of the applicable options - high, medium or low level (volume).
- 13) The High, Medium, or Low field is marked based on the type of tone.
- 14) Multiple fields can be marked if the tone lies between two of the specifications.
- 15) The corresponding field is marked based on the duration.
- 16) Multiple fields can be marked if the tone lies between two of the specifications.
- 17) Intermittent, if it is a series of noises or isolated, if it is only one noise.
- 18) Mark the label that is most similar to the noise.
- 19) Multiple fields can be marked if the noise is similar to multiple sounds.
- 20) Mark one or more of the nuances that the primary sound makes or just the accompanying, secondary sound.



Checklist description (guide), Section II

L - Under what circumstances does the noise occur (simultaneous events). Refer to ²¹⁾ 21) or ²²⁾ 22)

M - Vehicle speed when the noise occurs and the transmission type. Refer to ²³⁾ 23) or ²⁴⁾ 24)

N - Vehicle speed. Refer to ²⁵⁾ 25)

O - Engine speed (RPM). Refer to ²⁶⁾ 26)

P - Engine operating conditions. Refer to ²⁷⁾ 27)

Q - External conditions. Refer to ²⁸⁾ 28)

R - Ambient temperature. Refer to ²⁹⁾ 29)

S - Road quality. Refer to ³⁰⁾ 30)

T - At which seat can the noise be heard the loudest. Refer to ³¹⁾ 31)

U - Can the cause of the noise be located. Refer to ³²⁾ 32) or ³³⁾ 33)

V - Notes. Refer to ³⁴⁾ 34), ³⁵⁾ 35), ³⁶⁾ 36), ³⁷⁾ 37) or ³⁸⁾ 38)

21) Start by marking if the noise is heard constantly, frequently, rarely or very rarely.

22) Then mark the circumstance or circumstances, under which the noise occurs. In case the corresponding circumstance is not listed, note this in the "Other circumstances" field and describe.

23) Specification of the transmission type installed, automatic or manual transmission.

24) Mark the gear or gears in which the noise is detected.

25) Specify the speed range at which the noise occurs by marking multiple fields for the start and end point.

26) Specify the engine speed range at which the noise occurs by marking multiple fields for the start and end point.

27) Mark the engine operating condition(s) at which the noise is detected.

28) Mark the climate condition(s) in which the noise is detected.

29) Mark the ambient temperature(s) at which the noise occurs.

30) Mark the road condition(s) at which the noise occurs.

31) Mark the seat at which the noise can be the most clearly heard.

32) The technician will give their preliminary diagnosis after filling out the list.

33) If none of the fields apply, mark "Other" and describe in "Which?".

34) To record data accurately, it is necessary that the typical vehicle driver is present when filling out the first section of the checklist.

35) Recording data with the driver can be done by the technician or the service manager. The technician who will be performing the procedures on the vehicle will complete the checklist.

36) To obtain specific information, the technician must leave any applicable questions open-ended, so that the noise can be diagnosed correctly and without issue.

37) Likewise, the technician must explain to the customer the reasons for the questions previously asked and then inform them of any procedures to be conducted on the vehicle, so that they can give their consent.

38) By using the checklist correctly, the technician can determine the different operating conditions of the vehicle, under which the noise could be occurring. To determine the area or component that is creating the noise, the vehicle history should be noted, the acoustic properties of the noise should be analyzed and the order previously specified should be followed.





4 Volkswagen Equipment for Locating Noises

⇒ ["4.1 Ultrasonic Tester V.A.G 1842S", page 12](#)

⇒ ["4.2 Borescope VAS 6748A", page 15](#)

Occasionally complex noises occur which make it difficult to locate the cause, since the noise carries over different components and the origin cannot be precisely determined.

The available Volkswagen equipment and the corresponding procedures to locate noises are described below. In some cases, the equipment can complement each other during the procedure.

4.1 Ultrasonic Tester - V.A.G 1842S-

⇒ ["4.1.1 Ultrasonic Tester VAG 1842S Version", page 12](#)

⇒ ["4.1.2 Example Procedures, Detecting Noises with Ultrasonic Tester", page 12](#)

The Ultrasonic Tester - VAG 1842S- is used to record ultrasonic signals that cannot be detected by humans. The device converts the signals to light signal as well as to acoustic signals, so that the source or origin of the noise can be determined more accurately. This device increases the hearing capability and sensitivity of the technician.

4.1.1 Ultrasonic Tester - VAG 1842S- Version

- ◆ Plastic case



4.1.2 Example Procedures, Detecting Noises with Ultrasonic Tester

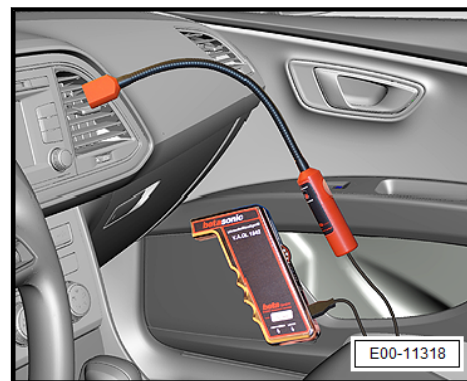
Rattling, knocking and humming noises

The low-frequency noises, muffled knocking noises (for example due to contact between the headliner and roof) or low-frequency humming noises create no or very few ultrasonic signals. In these cases, it is recommended to use the combo sensor which records and amplifies the audible noises and the ultrasonic sounds at the same time. This sensor is connected to the receiver through two connectors. Thanks to the wide range functionality and the option of higher sound amplification, it is possible to precisely locate the sound even if it is a low volume or behind instrument panels.

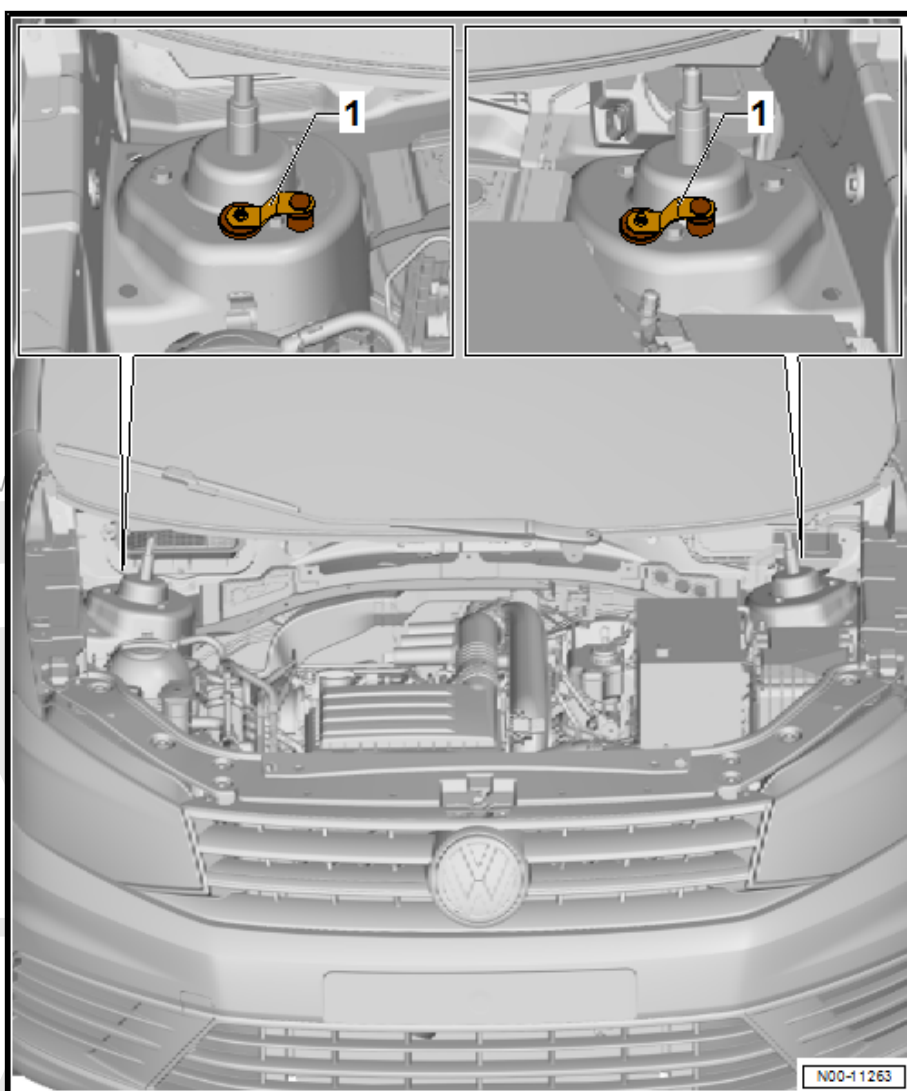


Note

Headphones must be worn so that the whistling sounds coming from the device do not cause any confusion.



Noises from the engine compartment or body



Located with an ultrasonic sensor -1- or a sound pickup device with magnetic medium -1-. They are mounted in pairs near the presumed source of the noise. Using the extension cords provided, it can be connected to the vehicle interior with a change-over switch on the receiver. The noise is evaluated during the test drive and the source is located by changing over and moving the sensors.



Caution

It is recommended to secure the sensors and cables with adhesive tape to avoid damaging these or other components caused by movement during the tests. It should be ensured that these are not mounted near any heat sources.

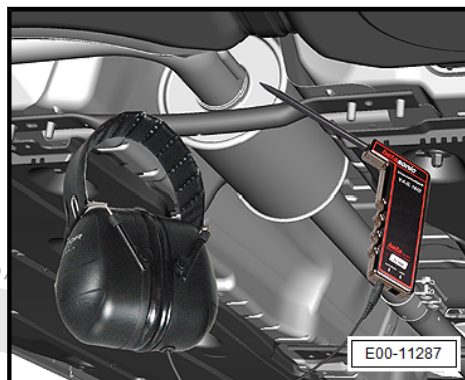
Locating small leaks in the intake manifold and in the exhaust system

Unsealed connections, loose wire clamps, porous or faulty vacuum lines as well as damaged seals can be clearly located with the receiver while the engine is running. A whistling/vacuum sound is heard through the headphones.

These small leaks could be the source of the noise at high engine speeds.

First, search the entire engine compartment using the receiver set at the maximum sensitivity with the headphones connected.

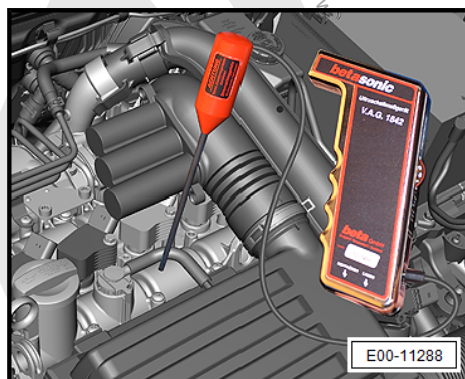
A higher ultrasonic level is created when there is a strong air stream. If this is the case, set the device sensitivity lower. After determining the approximate location of the source, the exact point of the leak will be located with the connected directional sensor or the pointed attachment.



Noises from mechanical components or bearings

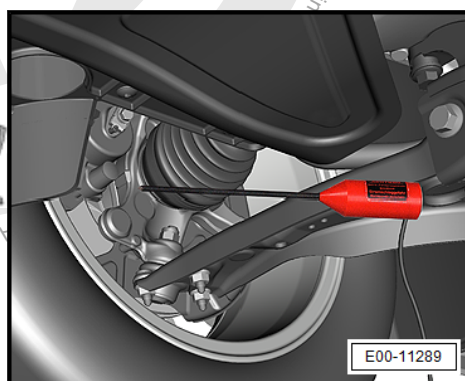
Almost all friction between metal components generates ultrasonic sounds, which can be heard and seen with the tester.

To locate the noise source, first the receiver needs to be used with the headphones connected to determine the possible location of the source. The sensitivity should be set on the receiver, so that the noise can be heard well but is not too loud.



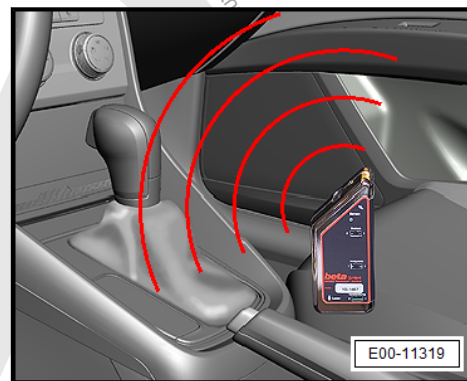
The highest LED display must lie within the center section (yellow LED). The noise is distinct in every case. Weaker signals are audible even if they are not shown. The closer the receiver comes to the damaged area, the stronger the received signal will become. To locate the noise source more accurately, connect the directional attachment (with the pointed attachment if necessary).

After closing in on the noise source, use the ultrasonic tester for structural vibrations, in which the point can contact the component and thus confirm that it is the location of the source.



Air leaks in the vehicle interior

To locate this leak, search with the receiver and the unidirectional attachment during a road test. Two technicians are required to do this in every case. Searching on the driver side during a test drive is dangerous and in this scenario, it is safer to perform a static test using the transmitter in the vehicle interior and the receiver in the exterior area. Using this method, air leak points can be located by scanning the door, window and panorama roof seals.

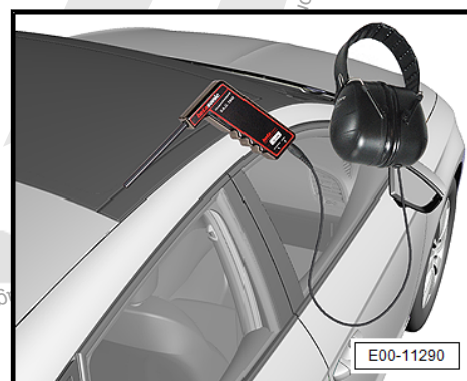


Air leaks in the vehicle interior are a possible cause of whistling noises or dynamic noises.



WARNING

- ◆ *The corresponding safety precautions must be followed during test drives where two technicians are required. One technician drives the vehicle, while the other conducts the test.*
- ◆ *The corresponding traffic regulations must be observed when driving on public streets. The test must never endanger the driving safety of the vehicle as well as the safety of other road users.*



4.2 Borescope - VAS 6748A-

⇒ ["4.2.1 Borescope VAS 6748A Version", page 15](#)

⇒ ["4.2.2 Procedure, Detecting Noises with Borescope", page 16](#)

The Borescope - VAS 6748A- is an electronic display unit used to identify noises. It is possible to locate the noises in the vehicle due to the images displayed in the monitor. These images are recorded by one of the micro cameras with high magnification and its own light source, which is attached to the end of the probe.

4.2.1 Borescope - VAS 6748A- Version

- ◆ Carrying Case





◆ Control Console

Allows color pictures and videos to be taken.

2 GB SD Card



4.2.2 Procedure, Detecting Noises with Borescope

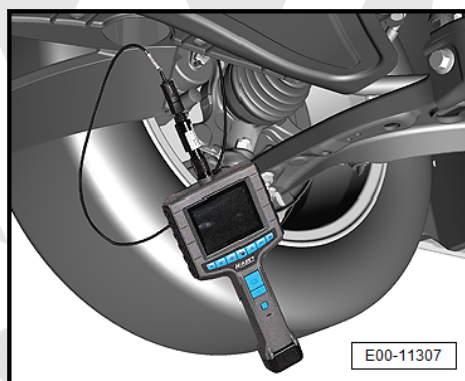
The borescope is used to check and search for other information about the noise source that still cannot be detected, and when it is in locations that cannot be seen with the bare eyes without needing to perform a large removal procedure. The borescope allows the various inner components to be seen.

Example:

It is possible to check the ventilation doors, fans or push rods on the bulkhead.



It is possible to check metal particles and their condition in the bearings.





5 Systems

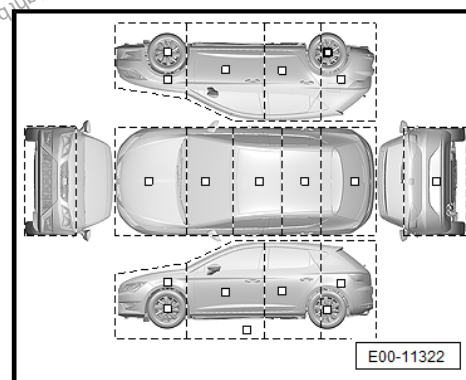
⇒ "5.1 Checklist", page 17

⇒ "5.2 Noise Descriptions", page 19

5.1 Checklist

Protocol for locating noises					
Vehicle data: (filled out together with the vehicle user)					
Item no.:		Brand:		Production date:	
Date:		Status:		Dealer:	
Engine type:		Mileage:		Retrofittings:	
Transmission type:		Service technician:			
Was a vehicle inspection performed?				YES <input type="checkbox"/>	NO <input type="checkbox"/>
Was the customer complaint confirmed?				YES <input type="checkbox"/>	NO <input type="checkbox"/>
Since when does the noise occur?		Always <input type="checkbox"/>		Recently <input type="checkbox"/>	
In steps <input type="checkbox"/>		After a collision <input type="checkbox"/>		After a procedure <input type="checkbox"/>	
Area affected by the procedure or the collision:					
Possible damage: (associated with existing faults)					
Black smoke <input type="checkbox"/>	Reduction in performance <input type="checkbox"/>	Transmission malfunction <input type="checkbox"/>			
Battery charge <input type="checkbox"/>	Play in the suspension <input type="checkbox"/>	Coolant loss <input type="checkbox"/>			
Vibrations <input type="checkbox"/>	Jerking <input type="checkbox"/>	Poor starting behavior <input type="checkbox"/>			
Indicator light turned on <input type="checkbox"/>	Hard steering <input type="checkbox"/>	Fuel loss <input type="checkbox"/>			
Oil loss <input type="checkbox"/>	Suspension rebound <input type="checkbox"/>				

Locating noises in the vehicle:



Noise level:	Decibel (dB)	High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Noise tone		High <input type="checkbox"/>	Medium <input type="checkbox"/>	Low <input type="checkbox"/>
Noise duration:		Long <input type="checkbox"/>	Short <input type="checkbox"/>	Continuous <input type="checkbox"/>
Noise regularity:		Intermittent or periodic <input type="checkbox"/>		Isolated <input type="checkbox"/>
Noise type descriptions:				
Flapping <input type="checkbox"/>	Explosion <input type="checkbox"/>	Grinding <input type="checkbox"/>	Unusual <input type="checkbox"/>	Bellowing <input type="checkbox"/>
Howling <input type="checkbox"/>	Yowling <input type="checkbox"/>	Buzzing <input type="checkbox"/>	Boom boom <input type="checkbox"/>	Moaning <input type="checkbox"/>
Vibrating <input type="checkbox"/>	Tapping <input type="checkbox"/>	Rubbing <input type="checkbox"/>	Bubbling <input type="checkbox"/>	Screeching <input type="checkbox"/>
Rattling <input type="checkbox"/>	Chirping <input type="checkbox"/>	Roaring <input type="checkbox"/>	Bzzzz <input type="checkbox"/>	Whip lash <input type="checkbox"/>
Clicking <input type="checkbox"/>	Humming <input type="checkbox"/>	Whistling <input type="checkbox"/>	Ringling <input type="checkbox"/>	Knock knock <input type="checkbox"/>



Squeaking <input type="checkbox"/>	Mooring <input type="checkbox"/>	Sirens <input type="checkbox"/>	Murmur <input type="checkbox"/>	Pop Pop <input type="checkbox"/>
Snapping <input type="checkbox"/>	Hissing <input type="checkbox"/>	Rattle <input type="checkbox"/>	Click Clack <input type="checkbox"/>	Whistle <input type="checkbox"/>
Clapping <input type="checkbox"/>	Crackling <input type="checkbox"/>	Bells <input type="checkbox"/>	Clip Clip <input type="checkbox"/>	Lisp <input type="checkbox"/>
Sizzling <input type="checkbox"/>	Scratching <input type="checkbox"/>	Clatter <input type="checkbox"/>	Clucking <input type="checkbox"/>	Tap Tap <input type="checkbox"/>
Creaking <input type="checkbox"/>	Scraping <input type="checkbox"/>	Whirring <input type="checkbox"/>	Tuning fork <input type="checkbox"/>	Ticking <input type="checkbox"/>
Noise nuance	Resonance (echo) <input type="checkbox"/>	Metal sound <input type="checkbox"/>	Plastic-like noise <input type="checkbox"/>	
Under what circumstances does the noise occur?				
Always <input type="checkbox"/>	Often <input type="checkbox"/>	Rarely <input type="checkbox"/>	Very rarely <input type="checkbox"/>	
Engine switched off <input type="checkbox"/>	When ignition is switched on <input type="checkbox"/>	When ignition is switched off <input type="checkbox"/>	When starting the engine <input type="checkbox"/>	
Idle <input type="checkbox"/>	Engine switched on <input type="checkbox"/>	Slow acceleration <input type="checkbox"/>	Average/medium acceleration <input type="checkbox"/>	
During full-throttle acceleration <input type="checkbox"/>	When decelerating <input type="checkbox"/>	Vehicle is stationary <input type="checkbox"/>	While driving <input type="checkbox"/>	
When braking <input type="checkbox"/>	When releasing the clutch <input type="checkbox"/>	When pressing the clutch <input type="checkbox"/>	Changing gears <input type="checkbox"/>	
When turning the steering wheel <input type="checkbox"/>	Under load <input type="checkbox"/>	Without load <input type="checkbox"/>	When driving over potholes <input type="checkbox"/>	
Driving downhill <input type="checkbox"/>	Driving uphill <input type="checkbox"/>	On right-hand curves <input type="checkbox"/>	On left-hand curves <input type="checkbox"/>	
A/C system switched off <input type="checkbox"/>	Vehicle interior recirculating air mode <input type="checkbox"/>	Heat switched on <input type="checkbox"/>	Parking heater switched on <input type="checkbox"/>	
Interior fan low setting <input type="checkbox"/>	Interior fan middle setting <input type="checkbox"/>	Interior fan high setting <input type="checkbox"/>	Other circumstances <input type="checkbox"/>	
Which? _____				
In which gear(s):				
Manual transmission <input type="checkbox"/>	1. <input type="checkbox"/>	2. <input type="checkbox"/>	3. <input type="checkbox"/>	4. <input type="checkbox"/>
Automatic transmission <input type="checkbox"/>	P <input type="checkbox"/>	N <input type="checkbox"/>	D <input type="checkbox"/>	R <input type="checkbox"/>
Vehicle speed range: <input type="checkbox"/> 0 <input type="checkbox"/> 25 <input type="checkbox"/> 50 <input type="checkbox"/> 75 <input type="checkbox"/> 100 <input type="checkbox"/> 125 <input type="checkbox"/> 150 <input type="checkbox"/> 175 <input type="checkbox"/> 200 <input type="checkbox"/> 225 <input type="checkbox"/> 250 km/h				
Engine speed range: <input type="checkbox"/> 0 <input type="checkbox"/> 1000 <input type="checkbox"/> 2000 <input type="checkbox"/> 3000 <input type="checkbox"/> 4000 <input type="checkbox"/> 5000 <input type="checkbox"/> 6000 <input type="checkbox"/> 7000				
Engine condition: Cold <input type="checkbox"/> Lukewarm <input type="checkbox"/> Warm <input type="checkbox"/>				
Weather condition:				
Rainy <input type="checkbox"/>	Dry <input type="checkbox"/>	Windy <input type="checkbox"/>	Hot <input type="checkbox"/>	Ice or Snow <input type="checkbox"/>
Ambient temperature: <input type="checkbox"/> -20 <input type="checkbox"/> -15 <input type="checkbox"/> -10 <input type="checkbox"/> -5 <input type="checkbox"/> 0 <input type="checkbox"/> 5 <input type="checkbox"/> 10 <input type="checkbox"/> 15 <input type="checkbox"/> 20 <input type="checkbox"/> 25 <input type="checkbox"/> 30 <input type="checkbox"/> 35 <input type="checkbox"/> 40 <input type="checkbox"/> 45 <input type="checkbox"/> 50				
Road condition:				
Flat <input type="checkbox"/>	Rough <input type="checkbox"/>	With pot-holes <input type="checkbox"/>	Not paved <input type="checkbox"/>	Bumpy <input type="checkbox"/>
At which seat is the noise the loudest?				
Right front <input type="checkbox"/>	Left front <input type="checkbox"/>	Rear right <input type="checkbox"/>		
Left rear <input type="checkbox"/>	Same at all <input type="checkbox"/>			
Can the source of the noise be located?				
Right front section <input type="checkbox"/>	Left front section <input type="checkbox"/>	Center front section <input type="checkbox"/>	Left front door <input type="checkbox"/>	
Right front door <input type="checkbox"/>	Right rear section <input type="checkbox"/>	Left rear area <input type="checkbox"/>	Center rear section <input type="checkbox"/>	
Left rear door <input type="checkbox"/>	Right rear door <input type="checkbox"/>	Rear lid <input type="checkbox"/>	Mirror <input type="checkbox"/>	
Bumper <input type="checkbox"/>	Roof <input type="checkbox"/>	Solar roof <input type="checkbox"/>	Body <input type="checkbox"/>	
Vehicle interior <input type="checkbox"/>	Seats <input type="checkbox"/>	Interior trim panels <input type="checkbox"/>	Instrument panel <input type="checkbox"/>	
Engine <input type="checkbox"/>	Drivetrain <input type="checkbox"/>	Transmission <input type="checkbox"/>	Clutch <input type="checkbox"/>	
Differential <input type="checkbox"/>	Intake manifold <input type="checkbox"/>	Turbocharger <input type="checkbox"/>	Coolant pump <input type="checkbox"/>	
A/C compressor <input type="checkbox"/>	Exhaust system <input type="checkbox"/>	Wheel <input type="checkbox"/>	Generator <input type="checkbox"/>	
Fuel pump <input type="checkbox"/>	Fuel filter <input type="checkbox"/>	Underbody <input type="checkbox"/>	Suspension <input type="checkbox"/>	
Belt pulley <input type="checkbox"/>	Bearing <input type="checkbox"/>	Belt <input type="checkbox"/>	Others... <input type="checkbox"/>	
Which? _____				
Notes: ³⁹⁾				

5.2 Noise Descriptions

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Cautions & Warnings

Please read these WARNINGS and CAUTIONS before proceeding with maintenance and repair work. You must answer that you have read and you understand these WARNINGS and CAUTIONS before you will be allowed to view this information.

- If you lack the skills, tools and equipment, or a suitable workshop for any procedure described in this manual, we suggest you leave such repairs to an authorized Volkswagen retailer or other qualified shop. We especially urge you to consult an authorized Volkswagen retailer before beginning repairs on any vehicle that may still be covered wholly or in part by any of the extensive warranties issued by Volkswagen.
- Disconnect the battery negative terminal (ground strap) whenever you work on the fuel system or the electrical system. Do not smoke or work near heaters or other fire hazards. Keep an approved fire extinguisher handy.
- Volkswagen is constantly improving its vehicles and sometimes these changes, both in parts and specifications, are made applicable to earlier models. Therefore, part numbers listed in this manual are for reference only. Always check with your authorized Volkswagen retailer parts department for the latest information.
- Any time the battery has been disconnected on an automatic transmission vehicle, it will be necessary to reestablish Transmission Control Module (TCM) basic settings using the Volkswagen Factory Approved Scan Tool (ST).
- Never work under a lifted vehicle unless it is solidly supported on stands designed for the purpose. Do not support a vehicle on cinder blocks, hollow tiles or other props that may crumble under continuous load. Never work under a vehicle that is supported solely by a jack. Never work under the vehicle while the engine is running.
- For vehicles equipped with an anti-theft radio, be sure of the correct radio activation code before disconnecting the battery or removing the radio. If the wrong code is entered when the power is restored, the radio may lock up and become inoperable, even if the correct code is used in a later attempt.
- If you are going to work under a vehicle on the ground, make sure that the ground is level. Block the wheels to keep the vehicle from rolling. Disconnect the battery negative terminal (ground strap) to prevent others from starting the vehicle while you are under it
- Do not attempt to work on your vehicle if you do not feel well. You increase the danger of injury to yourself and others if you are tired, upset or have taken medicine or any other substances that may impair you or keep you from being fully alert.
- Never run the engine unless the work area is well ventilated. Carbon monoxide (CO) kills.
- Always observe good workshop practices. Wear goggles when you operate machine tools or work with acid. Wear goggles, gloves and other protective clothing whenever the job requires working with harmful substances.
- Tie long hair behind your head. Do not wear a necktie, a scarf, loose clothing, or a necklace when you work near machine tools or running engines. If your hair, clothing, or jewelry were to get caught in the machinery, severe injury could result.
- Do not re-use any fasteners that are worn or deformed in normal use. Some fasteners are designed to be used only once and are unreliable and may fail if used a second time. This includes, but is not limited to, nuts, bolts, washers, circlips and cotter pins. Always follow the recommendations in this manual - replace these fasteners with new parts where indicated, and any other time it is deemed necessary by inspection.

Cautions & Warnings

- Illuminate the work area adequately but safely. Use a portable safety light for working inside or under the vehicle. Make sure the bulb is enclosed by a wire cage. The hot filament of an accidentally broken bulb can ignite spilled fuel or oil.
- Friction materials such as brake pads and clutch discs may contain asbestos fibers. Do not create dust by grinding, sanding, or by cleaning with compressed air. Avoid breathing asbestos fibers and asbestos dust. Breathing asbestos can cause serious diseases such as asbestosis or cancer, and may result in death.
- Finger rings should be removed so that they cannot cause electrical shorts, get caught in running machinery, or be crushed by heavy parts.
- Before starting a job, make certain that you have all the necessary tools and parts on hand. Read all the instructions thoroughly; do not attempt shortcuts. Use tools that are appropriate to the work and use only replacement parts meeting Volkswagen specifications. Makeshift tools, parts and procedures will not make good repairs.
- Catch draining fuel, oil or brake fluid in suitable containers. Do not use empty food or beverage containers that might mislead someone into drinking from them. Store flammable fluids away from fire hazards. Wipe up spills at once, but do not store the oily rags, which can ignite and burn spontaneously.
- Use pneumatic and electric tools only to loosen threaded parts and fasteners. Never use these tools to tighten fasteners, especially on light alloy parts. Always use a torque wrench to tighten fasteners to the tightening torque listed.
- Keep sparks, lighted matches, and open flame away from the top of the battery. If escaping hydrogen gas is ignited, it will ignite gas trapped in the cells and cause the battery to explode.
- Be mindful of the environment and ecology. Before you drain the crankcase, find out the proper way to dispose of the oil. Do not pour oil onto the ground, down a drain, or into a stream, pond, or lake. Consult local ordinances that govern the disposal of wastes.
- The air-conditioning (A/C) system is filled with a chemical refrigerant that is hazardous. The A/C system should be serviced only by trained automotive service technicians using approved refrigerant recovery/recycling equipment, trained in related safety precautions, and familiar with regulations governing the discharging and disposal of automotive chemical refrigerants.
- Before doing any electrical welding on vehicles equipped with anti-lock brakes (ABS), disconnect the battery negative terminal (ground strap) and the ABS control module connector.
- Do not expose any part of the A/C system to high temperatures such as open flame. Excessive heat will increase system pressure and may cause the system to burst.
- When boost-charging the battery, first remove the fuses for the Engine Control Module (ECM), the Transmission Control Module (TCM), the ABS control module, and the trip computer. In cases where one or more of these components is not separately fused, disconnect the control module connector(s).
- Some of the vehicles covered by this manual are equipped with a supplemental restraint system (SRS), that automatically deploys an airbag in the event of a frontal impact. The airbag is operated by an explosive device. Handled improperly or without adequate safeguards, it can be accidentally activated and cause serious personal injury. To guard against personal injury or airbag system failure, only trained Volkswagen Service technicians should test, disassemble or service the airbag system.

Cautions & Warnings

- Do not quick-charge the battery (for boost starting) for longer than one minute, and do not exceed 16.5 volts at the battery with the boosting cables attached. Wait at least one minute before boosting the battery a second time.
- Never use a test light to conduct electrical tests of the airbag system. The system must only be tested by trained Volkswagen Service technicians using the Volkswagen Factory Approved Scan Tool (ST) or an approved equivalent. The airbag unit must never be electrically tested while it is not installed in the vehicle.
- Some aerosol tire inflators are highly flammable. Be extremely cautious when repairing a tire that may have been inflated using an aerosol tire inflator. Keep sparks, open flame or other sources of ignition away from the tire repair area. Inflate and deflate the tire at least four times before breaking the bead from the rim. Completely remove the tire from the rim before attempting any repair.
- When driving or riding in an airbag-equipped vehicle, never hold test equipment in your hands or lap while the vehicle is in motion. Objects between you and the airbag can increase the risk of injury in an accident.

I have read and I understand these Cautions and Warnings.